

- 30 -

ABSTRACT

The object of the present invention is to provide a compact and inexpensive single-crystal growth apparatus. The single-crystal growth apparatus of the present invention which comprises spheroid mirrors 11, 12, heat sources 13, 14 located at the one foci F_1 , F_2 of the spheroid mirrors 11, 12, a quartz tube 16 enclosing a heating zone 15 of the common focus F_0 on the other side, and, in the quartz tube 16, a feed rod 18 supported by an upper crystal drive shaft 17 and a seed crystal rod 20 supported by a lower crystal drive shaft 19. The interfocal distance between the foci F_1 , F_2 and the foci F_0 is made 41.4 – 67.0 mm and the minor axis / major axis ratio of the spheroid mirrors is set to 0.90 – 0.95. In order to prevent excessive heat rise of the spheroid mirrors 11, 12 and infrared lamps 13, 14 attendant on downsizing of the spheroid mirrors 11, 12, the spheroid mirrors 11, 12 internally include annular water-cooling jackets 39, 40 and air-cooling units 45a, 46a are provided for introducing cooling air from gaps 43, 44 of the spheroid mirrors 11, 12 at a flow rate of 1.2 – 2.3 m³ / min. Further, ease of use is realized by self-circulating cooling water and imparting heat dissipation capacity utilizing a radiator 49.